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Antibiotic Resistant Staphylococcus — A Health Department Survey

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There is much interest and concern at present in the stubborn problem posed by the severity and persistence of a variety of pathological conditions caused by antibiotic resistant staphylococci.* The problem is met chiefly in hospitals. Among the contributing factors to the problem are the kinds and quantities of antibiotics used in the hospital (1); the presence of patients with infected lesions, and large numbers of susceptible patients unable to cope with infections (2). Implicated in spreading the organisms are the techniques used in cleaning the wards, laundering the hospital linen; and in the professional procedures used by medical and nursing staffs in the care of the patient. The most important agents in the spread of the organisms are considered to be the nasal and throat carriers of antibiotic resistant staphylococci among hospital personnel (3).

The following data from published statistics give an overall idea of the proportion of carriers of potential pathogenic (coagulase positive) staphylococcal strains and the antibiotic resistant staphylococcal strains found in various populations including those of hospitals. At any moment a normal population may contain 25 percent to 50 percent of persons who are carriers of potential pathogenic (coagulase positive) staphylococci (1). Culturing various populations for antibiotic resistant strains of staphylococci revealed in one study: 32 percent among hospital personnel and 4 percent among a blood donor clinic (4); in another study; university students, 8.6 percent, hospital outpatients 29.9 percent, hospital inpatients 75.4 percent, and hospital attendants as high as 80.6 percent (1) or 85 percent (5).

In view of a universal occurrence of carriers of potential pathogenic staphylococci, including antibiotic resistant organisms, and assuming that in a health department group the latter strains might be more numerous than in a normal population because of the semimedical character of the work, it was considered advisable to make a spot check of the personnel of the Los Angeles County Health Department for evidence of such carriers. There was, moreover, a practical motive for conducting such a survey. In April of 1957 it became known that a public health nurse (E. L.) employed in the health department since October, 1956, had been a persistent carrier of an antibiotic-resistant strain of staphylococcus. The carrier condition had been acquired at her former place of employment, a veterans' hospital in another state. Subsequent culture of her nose and throat revealed that she was still a carrier of a resistant strain of staphylococcus. Administrative questions arose as to what effect her carrier status should have on E. L.'s professional activities in the health department. Questions thought to be of importance were:

"What proportion of health department employees are antibiotic resistant staphylococcus carriers?

"What proportion of nurses on the staff are antibiotic resistant staphylococcal carriers?

"Are nurses more apt to be carriers of potential pathogenic staphylococci than persons in other health center classifications?

"Is there evidence of person-to-person spread of the carrier condition among the health center personnel?

"Are health center patients, especially infants, at risk from staphy-

* *Micrococcus pyogenes.*

Numerous articles have been published recently in various medical journals about the problem of hospital-related infections by antibiotic resistant staphylococci. This paper describes an extensive effort to determine to what extent these infections have become a problem in the community.

Dr. Dale used the facilities of district health departments in Los Angeles County to obtain the data. This is the first survey on this subject that we know of which has used health districts. It is reassuring that the community health problem could not be demonstrated to be significant.

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lococcal carriers among the nurses; or are maternal and child health clinics, attended as they are by many recently hospitalized mothers and infants, a source of staphylococcal exposure to the nurses?

"Are the venereal disease clinics and the tuberculosis clinics sources of infection from resistant strains of staphylococci because of the penicillin and streptomycin treated patients who gather there?

"Should there be changes in our nursing procedures to deal with the presence of antibiotic-resistant staphylococcal carriers on the staff?"

These seemed to be practical questions. Therefore we sought to furnish as pertinent answers as limited time and personnel would allow. It was decided to take a nasal and throat culture survey of the personnel in each of two health centers designated here as Center A and Center B. Center A was E. L.'s place of employment and Center B was chosen as a control since it maintained a staff comparable in size to that of Center A. In particular, the nursing staffs contained equal numbers of 25 nurses in each center. The 117 persons to be surveyed in this manner represented 13.6 percent of the entire health department staff.

Methods

Between April 30 and May 22, 1957, nasal and throat swabs were obtained from 117 persons of the staffs in two health centers; from 54 persons in Center A, and from 63 persons in Center B. Seven additional persons, relatives of E. L., were examined in the survey at Center A.

The swabs were immediately streaked on Loeffler's slants. Nasal and throat swabs from each person were combined on a single slant. The latter were delivered to the laboratory and incubated overnight at 37 degrees C. The growth appearing on a slant was streaked on a plate of Bacto Chapman Stone medium and incubated at 37 degrees C. for 48 hours. The medium was examined for golden pigmented colonies and also for "clearing." A platinum wire was used to transfer representative numbers of suspected staphylococci to tubes of brain heart infusion broth and to nutrient agar slants. A coagulase test was made from the 18- to 24-hour broth culture. If the latter proved to be positive, an antibiotic sensitivity test was carried out on agar plates using an inoculum from the broth culture and employing Bacto Unidisks (High Concentration, Code 7003). Since the Unidisks used in this study included penicillin, streptomycin, aureomycin, chloromycetin, tetramycin, tetracycline, and erythromycin, but did not include novobiocin, individual discs containing this antibiotic were placed in the center of the plates. Single colonies of the coagulase positive strains were typed by the phage method (6).

A questionnaire form was given to each person surveyed to write in the following information: Identification and official position, work assignment over the past 10 months, kind and extent of illness or infection with days lost from work thereby during the same period, medications received, and periods of hospitalization.

Results

An analysis of the data resulting from the survey of the health centers gave information more gratifying than had been expected, for instead of a large problem, only a small problem was revealed.

There was not a significant difference between the Center A and Center B laboratory results on nasal and throat cultures. In fact, coagulase positive cultures were slightly fewer from Center A than from Center B, 38.8 percent against 42.6 percent shown in Table I. There were four cultures containing antibiotic resistant staphylococci, two from each center.

Table I

Health center	Persons cultured	Coagulase positive cultures	
Designation	Number	Number	Percent
A	54	21	38.8
B	63	26	42.6

The statistical data of Centers A and B were combined for numerical advantages in comparing the results of cultures from different classifications of employees. Four broad classifications of health department personnel were set up as follows: Public Health Nursing, Clerical, Sanitarian, Unclassified. The results are summarized in Table II. Here two sets of data are exhibited as Sections A and B. Section A presents laboratory results on cultures from the 117 persons on the combined staffs of Centers A and B. In 77.8 percent (91) of the cultures gram positive cocci were found. Over half (47) of the gram positive cocci cultures, or 40.2 percent of all cultures, were coagulase positive strains and they included four antibiotic resistant strains. The four antibiotic resistant strains were 3.4 percent of the total cultures. These resistant strains came solely from the two public health nursing cultures and constituted 8 percent of that classification. Although 40 percent of the cultures from the nursing group were coagulase positive strains of staphylococci, the sanitarians had the highest rates of 47.4 percent. Both percents are within normal limits.

Cultures from the clerical and unclassified groups yielded the lowest rates of coagulase positive staphylococcal strains; 36.0 percent and 39.1 percent, respectively. The unclassified group included many smaller groups, such as physicians, dentists, medical social workers, registrars, telephone operators, and custodians. The physicians and dentists numbered seven; hence, their numbers were too small as a group for significant comparison with the larger classifications although, interestingly enough, their cultures yielded only coagulase negative strains.

Section B of Table II summarizes the results of culturing nasal and throat swabs from seven family contacts of E. L. Colonies of gram positive cocci grew on all cultures. Three of the cultures were coagulase negative strains and four were coagulase positive. Of the latter, two were of the phage type 44A and two were of the phage type 3A, 3B, 55, 39. None of the strains was antibiotic resistant nor of the phage pattern carried by E. L. However, occurrence of the two pairs of duplicate strains suggests some communicability among the family members.

The 47 strains of coagulase positive staphylococci classified in Table II were represented by 12 untypable strains and 24 phage types (35 strains).

Table II

CLASSIFICATION OF STAPHYLOCOCCAL CULTURES BY HEALTH CENTER PERSONNEL EXAMINED

Personnel cultured (nose and throat)			Gram positive cocci found						No gram positive cocci found	
			Number	Percent	Coagulase positive		Coagulase negative			
Classification	Number	Percent			Number	Percent	Number	Percent	Number	Percent
Totals	117	100%	91	77.8	47*	40.2	44	37.6	26	22.2
Public health nursing	50	100%	37	74.0	20*	40.0	17	34.0	13	26.0
Clerical	25	100%	19	76.0	9	36.0	10	40.0	6	24.0
Sanitarian	19	100%	17	89.5	9	47.4	8	42.1	2	10.5
Unclassified	23	100%	18	78.3	9	39.1	9	39.1	5	21.7
B (Supplement) Other persons cultured	7	100%	7	100.0	4	57.1	3	42.9	0	0

* Includes four cultures of antibiotic-resistant strains.

The first three phage types were represented by four antibiotic resistant strains. The four resistant strains are listed in Table III with their types and antibiotic sensitivity patterns given.

The table shows that two persons who carried the antibiotic resistant strains possessed the so-called 81 or "hospital" type, a type which has been widely associated with hospital epidemics in this nation and elsewhere.

The first person (E. L., previously mentioned) was known to have been a carrier of a resistant strain during her previous employment in a veterans' hospital. The second person, N. C., had been employed at health center B for approximately one month. She was employed during the preceding months on the pediatrics staff of a large general hospital where the 81 type of resistant staphylococcus was known to be endemic.

Neither of the remaining two carriers of antibiotic resistant organisms harbored the 81 type. One, K. B., who was a carrier of phage type 7, 47, 53, 54, 73, 75, 77, and VA-4, also a "hospital" type, had been off duty with influenza for five days in April, 1957. Her physician prescribed the antibiotic signemycin. K. B. had worked in the Child Health clinic for the past 10 months. The fourth person was a carrier of phage type 52, 52A. She had worked in the health center tuberculosis clinic for the past ten months; there was no history of antibiotic medication nor contact with a hospital environment. Of the four carriers of the antibiotic resistant staphylococci, these last two were the only ones who might have acquired the resistant organism in the course of their health center duties.

Table III also discloses that three of the four antibiotic resistant strains were resistant to the five following antibiotics: penicillin, streptomycin, aureomycin, terramycin, and tetracycline; they were sensitive to chloromycetin, erythromycin and novobiocin. The 81 strain carried by N. C. (the second person described) was sensitive to streptomycin; otherwise, the antibiotic sensitivity pattern was the same as in the other three strains.

The remaining 21 phage types (31 strains) were sensitive to antibiotics and were represented by 15 types with single strains and six types with multiple strains (16 strains).

In Table IV is shown the job relationships of persons carrying the six phage types in which multiple strains were found. In five instances persons having similar types worked in the same health center; two instances in Center A and three instances in Center B. In some of these instances communicability may have been involved, although coincidence could also have played an equal part.

TABLE III

ANTIBIOTIC RESISTANT CULTURES WITH THEIR PHAGE TYPES AND ANTIBIOTIC SENSITIVITY PATTERNS

Phage type	Persons cultured	Penicillin	Streptomycin	Aureomycin	Chloromycetin	Terramycin	Tetracycline	Erythromycin	Novobiocin
Antibiotic resistant types	Number	Sensitivity patterns							
52, 42B, 81	1	R	R	R	S	R	R	S	S
52, 42B, 81	1	R	S	R	S	R	R	S	S
52, 52A	1	R	R	R	S	R	R	S	S
7, 47, 53, 54, 73, 75, 77, VA4	1	R	R	R	S	R	R	S	S

Discussion

One is impressed, on the whole, that so few antibiotic resistant carriers of staphylococci should be found in a health center employee population of 117 persons. The occurrence of 3.4 percent resistant carriers is well within the normal range for a non-hospital population. If the carriers of two hospital 81 strains that were known to have been acquired elsewhere are disregarded, then only two resistant strains would be considered as possibly derived from contacts made in the health centers.

One is also impressed with the scant evidence of an exchange of coagulase-positive strains of staphy-

Table IV

PHAGE TYPES OCCURRING IN MORE THAN ONE INDIVIDUAL

No.	Phage type	Number strains	Center A	Center B
1.	44A	4	P.H.N. Clinic Nurse Sanitarian	Typist Clerk
2.	7, 77	3	P.H.N.	Senior P.H.N. Typist Clerk
3.	6, 7, 47, 54, 75	2		P.H.N. Typist Clerk
4.	3B, 3C	2	Caretaker Deputy Registrar	
5.	52, 52A	2		Dairy Inspector Sanitarian
6.	6, 47, 53, 54, 75, VA4	2	Dairy Inspector	Sanitarian

lococci amongst the health center employees. The evidence is also slight that health center employees acquire potential pathogenic strains of staphylococci from health center patients.

But how does one account for the fact that carriers of antibiotic resistant staphylococci were found only among the nursing personnel? Probably because the nurses' duties require closer contact with many persons who, because of recent hospitalization or frequent antibiotic medication, may be carriers of the resistant organism. It has been observed that hospital acquired staphylococci have been transferred to family members after the patient's discharge from the hospital (7). It is likely that transfer of such strains occurs outside the family circle in some instances.

In what fortunate ways then does the health department environment differ from that of a hospital, that it prevents a problem with antibiotic resistant staphylococcus carriers from developing.

First and most fundamentally, the health department does not "treat" patients therapeutically. In a hospital the production of human reservoirs of antibiotic resistant staphylococci is proportionate to the volume of antibiotic medication administered to the patient population (1).

When the use of antibiotics destroys the antibiotic sensitive staphylococci, the human soil is ready for the implantation of resistant types and the resistant type or its forerunner is usually on hand in the hospital environment ready to be implanted (1).

Again, the health center patients are ambulatory; most of them are well and they attend health center clinics for short periods only, usually by appointment; whereas, in the hospital, bed patients remain for prolonged periods. Some bed patients are suffering from primary or secondary conditions caused by staphylococcal infections, and may have discharging lesions. Some patients are carriers of the resistant organisms although hospitalized for other reasons. Other patients, because of lowered resistance from chronic infectious illnesses and degenerative diseases, are susceptible to hospital infections or to acquiring a carrier condition (2).

Staphylococcal carriers excrete the organisms not only by the nose and mouth, but in large quantities by the stool. Every means of direct and indirect spread of the organism is possible, but the indirect means is the most common (8). In the hospital the patients serve as the most important reservoirs for strains of antibiotic resistant staphylococci.

Finally, health center workers lack contact with the abundant reservoir of antibiotic resistant staphylococci that hospital attendants encounter daily. Hospital attendants become the most important agents in transmitting the infection because of the high proportion of asymptomatic carriers among them; the nasal carrier is the most common but the throat carrier is the most active (9) (10). There is evidence that some carriers, even without active lesions, can contaminate the atmosphere with much greater numbers of staphylococci than others. Such persons are dangerous even when wearing a sterile gown (8). The attendant with an active staphylococcal lesion, even so small as a pimple or so "simple" as a slight head cold, should stay off duty. Such persons are especially active carriers. The hands are an important factor in transmitting the organisms from the facial area, around the mouth and nose, to clothing, gowns, bedclothes and from these on into the atmosphere. Even despite the greatest care, the atmosphere of general hospitals is contaminated with staphylococcal organism (8).

Clearly, the hospital picture does not fit the health center circumstances. In comparison, the health center employees are a normal population so far as proneness to staphylococcal infections or carrier conditions are concerned. An occasional carrier of a resistant organism will be found among the group.

The area for special caution in a health center is the place of contact between health center employees and the public, especially in the clinics. A policy for the administrative control of antibiotic resistant staphylococcal carriers in the health department clinics should be realistic and based on the following facts. First—an exchange of staphylococcal organisms between the staff members and clinic patients is possible at all times: and second—in the health center setup there is as much risk, if not more, of transmission of potential pathogenic staphylococcal organisms from the carrier-patient to the susceptible-attendant than from the carrier-attendant to the susceptible-patient. Third—the carrier condition is continually shifting its involvement of persons, and every one carries staphylococci at some time. Studies of cultures obtained from the personnel of the Municipal Disease Hospital in Chicago showed that over a period of 18 months, 75 percent of the personnel became at least transient carriers of coagulase positive staphylococcus organisms and that two-thirds of those persons lost the specific strain within a month. * * * A few persons lose specific strains slowly and become prolonged carriers (3).

Obviously, it is impractical to attempt the detection of staphylococcal carriers by frequent culturing and it is practically impossible to clear up

a carrier condition by medical means (5). Realistic preventive efforts, therefore, should place emphasis on conscientious adherence to nursing techniques, particularly those of hand washing. In addition, a nurse with pustular lesions or an acute respiratory infection should stay off duty until recovered.

Summary and Conclusions

The rate of coagulase positive staphylococcal carriers in a health center population of 117 persons was 40.2 percent; it is comparable to rates found in a normal population.

The rate of carriers of antibiotic resistant staphylococci that was found in the health center population was 3.4 percent. The carriers of resistant strains were members of the nursing staff and composed 8 percent of that group. Both rates are within ranges reportedly found in normal populations.

The communicability of staphylococci among family members was illustrated by the cultures obtained from seven family contacts of E. L.

Among health center personnel there was no evidence of exchange of antibiotic resistant strains and slight evidence of the exchange of other potential pathogenic strains of staphylococci.

Between the health center personnel and the health center clinic patrons there was a possibility of the transfer of antibiotic resistant organisms.

In the two health centers surveyed, the environment was not favorable to the emergence of resistant strains nor to the transmission of these or of other potential pathogenic strains.

Administrative measures to control the spread of antibiotic resistant staphylococci should emphasize the observance of good nursing housekeeping and aseptic techniques in the clinics with emphasis on handwashing and the exclusion of persons with pustular lesions and respiratory infections.

ACKNOWLEDGMENTS

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Joint Office of APHA and Western Branch to Open

As a result of efforts by the Task Force Committee of Western Branch, APHA, and further negotiation between the Western Branch and its parent organization, the American Public Health Association, agreement has been reached to open a joint western office in San Francisco early in September.

At the annual meeting of the Western Branch, APHA, held in Vancouver in May, agreement was reached on the opening of the office. The Executive Committee of Western Branch voted to contribute between $6,000 and $7,500 annually for the next three years toward support of this western office, with the understanding that the office will take over the ordinary operating procedures and expenses of Western Branch, including the publication of *Western Public Health*.

Mr. Robert Mytinger has been selected by the APHA and the Executive Committee of the Western Branch to head the office. In this capacity Mr. Mytinger will represent the APHA in the West, serve as executive for the Western Branch, and act as staff secretary for the APHA Committee on Relationships with Affiliated Societies.

To assume his new duties Mr. Mytinger will resign as program director of the Paper Cup and Container Institute of New York City, a position he took in January of this year when Homer Calver retired. He is a Westerner, however. His entire education has been in Nevada, Oregon, and California. His training is in sanitation and health education, with a bachelor of science degree in sanitation from the University of California at Los Angeles and a master of public health degree in health education from the School of Public Health at Berkeley.

Mr. Mytinger has been active and prominent in various public health groups and organizations.

ROBERT E. MYTINGER, M.P.H.

COMMUNITY IMMUNIZATION ACTIVITIES

Statement of Policy

EDITOR'S NOTE: This department has received numerous queries from individuals and community groups interested in immunization programs, for this reason we are publishing the following policy statement adopted jointly by the California Conference of Local Health Officers and the California State Department of Public Health at Sacramento, November 27, 1956.

"The objective of artificial immunization is the prevention of disability or death from a particular disease. There are specific immunizing agents for many diseases. The effectiveness of each of these agents varies, and their value therefore to each individual varies, depending upon such factors as the relative risk of exposure and the potential hazard which the disease process may represent for each person as determined, by age, occupation, mode of life, travel, sex, etc.

"Professional medical judgment and advice are necessary, therefore, for each person or family to select from the available technical procedures, those which are of most advantage to the individual. The services of a licensed physician are mandatory for prescription and supervision of the administration of the immunizing material.

"For some infectious diseases, the early years of life represent the period of greatest risk and it has been accepted that immunization against these diseases should begin as soon as possible after birth with "booster" inoculations at appropriate intervals, in some instances throughout life. To ignore primary immunizations until a child has reached school age is contrary to the best interest of the community as well as the individual.

"For some infectious diseases, the community as a whole needs maximum protection to prevent spread and to minimize disability and death. This is accomplished in part through artificial immunization of as many individuals as possible, and in part by environmental control measures which minimize or eliminate opportunities for dissemination of the infectious agent. It has been generally accepted in the United States that maximum community immunization in appropriate age groups should be sought against smallpox, diphtheria, pertussis, tetanus, and poliomyelitis.

"It is a recognized responsibility of health officers to determine the immunization status of the communities which they serve and to take such steps as may be necessary to see that adequate levels of immunization are maintained. To accomplish this, an organized program utilizing both public and private resources, must be planned and carried out on a continuing basis. It is the responsibility of the local community in California to determine the relative priority which will be given to immunization activities within its overall program for the protection of the public health. The local community must also determine the appropriate division of responsibility between public and private resources by means of which its objectives as regards the maintenance of immunization levels can best be achieved.

"The overall objective is to obtain maximum necessary protection for the people of California against smallpox, diphtheria, pertussis, tetanus and poliomyelitis through active immunization of susceptible individuals by co-operative utilization of private and public resources, in accordance with accepted professional and scientific standards.

"The State Department of Public Health will furnish consultation and assistance upon request to the local health officers, and through them to the local communities to develop the most appropriate methods for each community to use in achieving and measuring progress toward this goal."

Public Health Positions

Fresno County

Health Officer: Salary range, $1,038 to $1,297. Starting rate commensurate with ability and experience. Requirements are: (1) License to practice medicine in California and (2) Three years full-time public health medical experience with administrative responsibilities (One year of graduate study toward M.P.H. or its equivalent in a recognized school of public health may be substituted for two years experience.) Final date for filing application is July 31st. Send application with sufficient amplification for proper understanding of qualifications to Edward W. Firby, Director of Personnel, Room 101, Hall of Records, Fresno, California.

Humboldt-Del Norte County

Public Health Microbiologist: Salary range, $371 to $464. May start at salary above the beginning level. Permanent position in health department laboratory available beginning July 17, 1958. Located in Redwood Empire Vacationland; other local advantages. For details write to Lester S. McLean, M.D., Health Officer, Humboldt-Del Norte, P. O. Box 857, Eureka, California.

Public Health Nurse: Salary range $430 to $549. First step increase after six months. County health department position. Generalized program including school nursing. Car furnished for work; 37½-hour week. PHN and California driver's license required. Apply to Virginia Nelson, Director of Public Health Nursing, at address above.

Inyo County

Sanitarian: Salary range, $436 to $530. Starting salary dependent on experience and qualifications. Car furnished. Must have certificate of registration or be eligible for it. Apply V. H. Hough, M.D., Health Officer, Inyo County, Independence, California.

State Board Adopts Nalorphine Regulations

The State Board of Public Health held a public hearing in Berkeley on June 6th to present regulations for the use of the nalorphine test to detect the use of narcotics by persons on probation or parole.

The adoption of these regulations was the result of 1957 legislation which gave responsibility to the State Department of Public Health, in conjunction with the State Bureau of Narcotic Enforcement, for administration of regulations governing the giving of this test. The law adopted at that time authorizes a city or county health officer, or a physician appointed by him, to perform the test.

The regulations adopted following the public hearing were drawn up with the advice and recommendations of an ad hoc advisory committee appointed for the purpose. Membership of this committee was reported in the June 1st issue of *California's Health*.

The regulations require that the State Department of Public Health provide a guide to aid physicians in the administration and interpretation of the nalorphine test. This will be published in the near future.

Allergy affects 16,000,000 Americans, according to an estimate of the National Institute of Allergy and Infectious Diseases of the United States Department of Health, Education and Welfare.

SPECIAL CENSUS RELEASES *

Special Census of California cities, **Series P-28** *Fresno County:* Fresno (1150); Reedley (1152); *Los Angeles County:* Dairy Valley (1152); Glendale (1152 and 1154); Torrance (1152); Inglewood (1152); Torrance (1169); Monterey (1179); *Marin County:* Corte Madera (1152); *Merced County:* Livingston (1152); *Monterey County:* Del Ray Oaks (1152); *Orange County:* San Clemente (1152); Buena Park (1180); La Habra (1181); Anaheim (1185); *San Bernardino County:* Needles (1152); Colton (1183); *San Diego County:* Imperial Beach (1173); Chula Vista (1176); *San Joaquin County:* Lodi (1172); *San Mateo County:* Atherton (1152); San Mateo (1152 and 1160); *Santa Barbara County:* Santa Barbara (1145); Lompoc (1152); *Santa Clara County:* Santa Clara (1167); Palo Alto (1175); Sunnyva'e (1184); *Sonoma County:* Cloverdale (1152); *Stanislaus County:* Patterson (1152); *Ventura County:* Oxnard (1186).

Copies of these releases may be obtained from: Library, Bureau of Foreign and Domestic Commerce, United States Department of Commerce at 419 Customs Building, 555 Battery Street, San Francisco, California, or at Room 450, 1031 South Broadway, Los Angeles, California.

* In ordering, specify series and number as shown in parenthesis. These numbers are *not* population figures.

Department Sponsors Program For Medical Students

This summer 15 second-, third- and fourth-year medical students, selected from more than 90 applicants representing over 40 medical schools, will participate in a three-month employment program sponsored by the California State Department of Public Health.

Projects being undertaken by the students include studies of neurotropic virus diseases, cardiovascular disease, air pollution health effects, alcoholism and cirrhosis, prematurity and congenital malformation, child health supervision, and epidemiology of childhood accidents.

In addition to the supervised experience by American Board members on the department's staff, the program will offer students orientation sessions and seminars in preventive medicine, epidemiology, and public health programs. Each student will be required to prepare a detailed report of his project assignment.

Although the department previously has employed medical students during the summer months, this marks the first time a co-ordinated program of this magnitude has been attempted.

Hospital Food Poisoning Outbreak

A local health department in Southern California recently reported an outbreak of food poisoning in a small hospital. The etiologic agent was staphylococcus.

The laboratory-confirmed source of the infection was turkey salad, the remains of a frozen turkey originally purchased some seven days before.

The turkey progressed to salad in the following stages: purchased frozen, thawed at room temperature, roasted the next day and served; carcass left unrefrigerated for several hours, then placed in refrigerator; carcass boiled the next day, meat removed, wrapped in tin foil and frozen; stock served as soup; three days later meat defrosted in refrigerator and the following day chopped and made into salad (a five-hour operation); three hours later the turkey salad was served.

Fourteen of the 19 persons eating the meal became ill one to seven hours after eating the turkey salad, suffering symptoms of nausea, vomiting and diarrhea.

On investigation it was discovered that one of the food handlers had cuts on both hands.

"Curative medicine is much more glamorous than preventive, both to the medical profession and the public, without the realization that each cure represents a failure from a preventive aspect."—*Hugh Paul, M.D., Manitoba Health Division Newsletter,* Vol. 5, No. 6.

SPECIAL CENSUS RELEASES

School Enrollment: October, 1957. *Current Population Reports, Population Characteristics,* February 13, 1958, **Series P-20,** (80).

Marital Status, Economic Status and Family Status, March, 1957. *Current Population Reports, Population Characteristics,* March 19, 1958, **Series P-20,** (81).

Estimates of the Population of the United States and Components of Population Change: 1950 to 1958. *Current Population Reports, Population Estimates,* February 17, 1958, **Series P-25,** (173).

Provisional Estimates of the Population of the United States, January 1, 1950, to February 1, 1958. *Current Population Reports, Population Estimates,* March 14, 1958, **Series P-25,** (174).

Provisional Estimates of the Population of the United States, January 1, 1950 to March 1, 1958. *Current Population Reports, Population Estimates,* April 15, 1958, **Series P-25,** (175).

Copies of these releases may be obtained from: Library, Bureau of Foreign and Domestic Commerce, United States Department of Commerce at 419 Customs Building, 555 Battery Street, San Francisco, California, or at Room 450, 1031 South Broadway, Los Angeles, California.

In ordering, specify series and number as shown in parentheses. These numbers are *not* population figures.

In the United States there are an estimated 22,000 well-defined occupations.—*Virginia Health Bulletin, March, 1958*

American workmen lose about 500,000,000 man-days a year to sickness and injury.—*Virginia Health Bulletin, March, 1958*

Travel Hints

The latest publication of the State Department of Public Health is a leaflet giving advice on staying healthy while traveling outside the United States, especially in places with poor sanitation.

The attractively illustrated folder is designed to fit into the International Certificate of Vaccination. It was adapted from a similar leaflet developed by the San Diego Health Department.

In accord with the usual policy, the department is making these available to local health departments for distribution. The local departments will probably allot supplies to travel agencies in their jurisdictions, besides making direct distribution to the public.

Health Hints for Foreign Travel
FROM YOUR HEALTH DEPARTMENT
This advice is offered to help you have a pleasant, comfortable trip and keep you from developing illness later as a result of your trip. *This folder will fit inside your International Certificate of Vaccination.*

Chronic disease accounts for 88 percent of all disabling conditions.—*National Health Education Comtee, Inc.*

U. S. children between the ages of six and 18 need more than 250,000,000 fillings.—*Virginia Health Bulletin, January, 1958*

About 2,800,000,000 pounds of candy are sold in the United States each year.—*Journal A. M. A., March 1, 1958*

It is estimated there are 15,000,000 acoustically handicapped persons in the United States.—*American Hearing Society Newsrelease*

REMINDER!

If you want to stay on the *California's Health* mailing list you must return the card that was attached to the June 15th issue.

Bacteriologists at the University of California, Berkeley, have demonstrated for the first time that air ions are capable of killing bacteria.—*U. C. Clip Sheet*, October 15, 1957

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State Director of Public Health

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